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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/654,177	09/01/2000	Ahmad Jalali	PA000376	6254
23696	7590	05/03/2005	EXAMINER	
Qualcomm Incorporated Patents Department 5775 Morehouse Drive San Diego, CA 92121-1714			CORRIELUS, JEAN B	
			ART UNIT	PAPER NUMBER
			2637	

DATE MAILED: 05/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/654,177

Applicant(s)

JALALI ET AL.

Examiner

Jean B Corrielus

Art Unit

2631

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 20 December 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) 1-8 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 17 and 18 is/are allowed.
- 6) ☒ Claim(s) 9-14 is/are rejected.
- 7) ☒ Claim(s) 15 and 16 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

### **DETAILED ACTION**

1. Applicant's arguments see response, filed 12/20/04, with respect to the rejection(s) of claim(s) 9-13 and 14 under Gurcan have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Mueller et al. In addition, upon further consideration of the Offord reference, the rejection of claim 15 and 16 has been withdrawn.

### ***Drawings***

2. The drawings were received on 12/20/04. These drawings are acceptable.

### **Claim Rejections - 35 USC § 103**

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 9, 10, 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Offord et al. (U.S. Patent No. 5,901,075 of record) in view of Mueller

et al US Patent No 3,715,666 and further in view of Nikias et al US Patent No. 5,282,225.

As to claim 9, 13 and 14 Offord teaches an apparatus (and a method) that comprises a plurality of tap weights in a FIR filter (equalizer) whose coefficients are associated with the data signals received during assigned time slots (see Abstract, col. 2, lines 33-41, col. 3, line 66-col.4, line 5), a summing node (summer) 18 coupled to the plurality of the tap weights to sum the tap outputs (Fig. 2 and 3, and col. 1, lines 37-48) and a processor (memory) 38 to process the indicated tap weights coefficient which get updated during the assigned time slots(col.3, lines 54-65 and col.5, lines 26-31) as claimed in claims 9, 13 and 14. However, Offord does not explicitly teach that the number of taps being equal to a total number of symbols. In addition, as noted in the applicant's comment filed on 7/22/04, page 6, last paragraph-to page 7, line 2, Offord does not teach the further limitations of storing coefficient adjustment information in a memory wherein the associated coefficients are adjusted according to the coefficient adjustment information.

In the same field of endeavor, Mueller et al teaches that the number of taps being equal to a total number of symbols see col. 2, lines 54-55 and col. 4, lines 48-55. Given that fact, it would have been obvious to one skill in the art to incorporate such a teaching in Offord in order to improve the performance of the equalizer by reducing the amount of time required to generate the tap coefficients as taught by Mueller et al see col. 34 lines 50-51. In addition, Nikias et al teaches the further limitations of teaching the further limitations of storing coefficient adjustment information in a memory wherein the

associated coefficients are adjusted according to the coefficient adjustment information see fig. 5A, abstract and col. 2, lines 6-23. Given that fact, it would have been obvious to one skill in the art to one skill in the art at the time the invention was made to incorporate Nikias et al in both Offord and Mueller et al in order to achieve fast convergence of the equalizer coefficients as taught by Nikias et al see abstract.

As per claim 10, Offord further discusses generating carrier to interference ratio (C/I) at the output of the summing node (summer) (col.4, lines 26-37).

5. Claims 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Offord et al. (U.S. Patent No. 5,901,075 of record) in view of Mueller et al further in view of Nikias et al US Patent No. 5,282,225 and further in view of Chin Hwa Lee et al (Signals, Systems and Computers 1994, Vol. 1, pp 89-93).

As per claim 11, as applied to claims 9 and 13 above, Offord, Mueller et al and Nikias et al teach the invention substantially as claimed but does not explicitly teach the further limitation of estimating a C/I for each time slot.

Lee, however, discusses generating variable data rate based on the carrier to noise ratio determined for each time slot (carrier to interference ratio) during as assigned time slot in wireless technology to increase communication capacity (page 91, col.2). It would have been obvious to an ordinary person skilled in the art to apply Lee's teaching of generating data rate based on C/I estimate calculated by the processor 38 in Offord, Mueller et al and Nikias et al in order to produce the required tap weight coefficients for the FIR filter in order to save power consumption by the mobile station, and to obtain higher data rate, a balanced link budget between mobile and base station

during transmission and maintain link quality of the transmission at the time the invention was made.

As per claim 12, it would have been obvious to one skill in the art to incorporate a lookup table for correlating C/I estimates and data rates so as to increase system performance.

***Allowable Subject Matter***

6. Claims 17-18 are allowed.


7. Claims 15 and 16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jean B. Corrielus whose telephone number is 571-272-3020. The examiner can normally be reached on Maxi-Flex.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay Patel can be reached on 571-272-3086. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Jean B Cornelius  
Primary Examiner  
Art Unit 2637

4-29-05